

Title (en)
GAS DELIVERY FOR ION BEAM DEPOSITION AND ETCHING

Publication
EP 0483517 A3 19920527 (EN)

Application
EP 91116508 A 19910927

Priority
US 60560190 A 19901029

Abstract (en)
[origin: EP0483517A2] An ion beam structure includes a gas container (16), such as a cylindrical can having first (12) and second apertures (14) through the center of the top and bottom walls respectively of the container such that a narrow ion beam (20) is passed through the apertures and the center axis of the can and onto a target specimen (22) such as a mask or chip or other article of manufacture disposed closely below the bottom of the can. The can may further include deflection (42) means for applying voltages and/or magnetic fields to locations on the can (i.e., top, bottom, sides) to direct secondary charged particles such as electrons emitted from the specimen onto an electron detection means (30) such that the structure functions as an imaging system. The electric and/or magnetic fields may be employed to increase the collection efficiency of the detector and thereby improve the quality of the image by increasing the signal to noise ratio. When the collected image produced by the secondary charged particles indicates that a repair or other modification be performed, a gas is introduced into the can from a gas reservoir (24) via a tube. The gas, which contains first type particles (i.e. gold atom, tungsten atom, etc.) leaves the can via the bottom aperture and is adsorbed onto the nearby target specimen surface. The ion beam, containing second type particles (i.e. gallium ions) passes through the gas with minimum interaction and strikes the target specimen surface to decompose the adsorbed gas and the decomposed first type particles to provide the modification such as repair to the specimen (mask or chip) surface. <IMAGE>

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G01Q 30/20 (2010.01); **H01J 27/00** (2006.01); **H01J 37/22** (2006.01); **H01J 37/28** (2006.01); **H01J 37/30** (2006.01); **H01J 37/305** (2006.01); **H01J 37/317** (2006.01); **H01L 21/265** (2006.01); **H01L 21/285** (2006.01); **H01L 21/302** (2006.01); **H05H 3/06** (2006.01)

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Citation (search report)
• [A] EP 0320292 A2 19890614 - FUJITSU LTD [JP]
• [A] EP 0075949 A2 19830406 - HITACHI LTD [JP]
• [A] WO 8602774 A1 19860509 - ION BEAM SYSTEMS INC [US], et al
• [A] PATENT ABSTRACTS OF JAPAN vol. 10, no. 262 (C-371)6 September 1986 & JP-A-61 087 871 (SEIKO EPSON) 6 May 1986
• [A] PATENT ABSTRACTS OF JAPAN vol. 10, no. 186 (E-416)(2242) 28 June 1986 & JP-A-61 034 844 (HITACHI) 19 February 1986

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